

Pit Bottoms

Backfill Levels No Action Proposed

Backfill pit bottoms to at least 3 feet above projected ground water recovery levels as indicated below. Accompanying cross sections are shown in Appendix 1.

Pit	Backfill Level
Jackpile	5932
North Paguate	5951 downgradient of cut-off/ 5983 upgradient of cut-off
South Paguate	5986-5988
South Paguate (SP 20)	6053

Refer to the Hydrology Section in Chapter 3 for explanation.

Backfill west end (PW 2/3 area) of North Paguate Pit to elevation of 6043'. The other backfill elevations for each of the pits would be the same as Applicant's Proposal subject to a stipulation that a ground water recovery monitoring program be established. If monitoring data reveals that the initial backfill levels were underestimated, then Anaconda would be required to provide additional backfill.

Backfill, contour, and channel pit areas to the following specifications. Accompanying cross sections are shown in Appendix 1.

Pit	Avg. Fill Elev.	Drainage Entry Elev.	Drainage Exit Elev.
Jackpile	5945	5940	5930
NP (East)	5960	5957	5940
NP (West)	5970	5965	5960
SP (East)	6030	6025	6000
SP (SP 20)	6070	--	--

Backfill Jackpile Pit to an elevation of 5932' (10 feet above projected ground water recovery level). Backfill North Paguate Pit 10 feet above recovery levels to elevations of 5958' (downgradient of cut-off) and 5990' (upgradient of cut-off). Backfill South Paguate Pit to its original contour.

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AUTHORIZED BY: 

DATE: 5/16/13

Backfill Materials No Action Proposed

Would consist of protore, waste dumps Same as Applicant's Proposal. H and J, and excess material obtained from waste dump sloping and stream channel clearing. These materials would be covered with 4 feet of non-hazardous overburden and 1 foot of topsoil.

Same as Applicant's Proposal. Materials excavated from drainage channels would also be used as backfill.

Same as Applicant's Proposal except that all protore would be positioned above predicted ground water recovery levels. Install a separate fence around the protore stockpile areas.

Stabilization No Action Proposed

Reduce all backfill slopes no greater than 3:1. Construct surface water control berms within pit confines to reduce erosion and retain soil moisture for plant growth. These areas will then undergo surface shaping, topsoil application and seeding as outlined in the vegetation segment of this table.

Same as Applicant's Proposal, except pit bottoms would be contour furrowed.

Side slopes on drainage channels would be only slightly less than angle of repose. Remaining measures would be same as Applicant's Proposal.

Same as Controlled Use Alternative (Option A).

Post Reclamation Access No Action Proposed

Livestock and vehicle access to the pit bottoms will be provided through the use of existing or newly created ramps.

Same as Applicant's Proposal.

Same as Applicant's Proposal.

Same as Applicant's Proposal.

Pit Highwalls

Jackpile Pit Highwall No Action Proposed

Stabilization by scaling and buttressing. Amount of buttressing material would be 3.8 million tons of waste, or 10 percent of the amount needed for ground water protection. The overall slope of the buttress will not exceed 3:1. Alternate method of stabilization may consist of removing top of highwall by either scaling to an angle that required stability.

Buttressing would be the same as the Applicant's Proposal. Additional treatment would consist of using blinding and mechanical methods to reconstruct the west face of Devils Nose as that sandstone units would have a near vertical angle and shale units would be at their natural angle of repose.

Same as Option A.

Same as Controlled Use Alternative (Option A). Additionally, monitor semi-annually any portion of Devils Nose greater than 350 feet in height which has a safety factor less than 1.5. Those portions of the highwall exhibiting stability problems are to be repaired as needed by scaling or other appropriate methods. Buttress North Paguate Pit highwall to its crest and slope buttress

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North Paguate Pit Highwall				
No Action Proposed	Scale top of highwall to remove loose rock and debris.	Same as Applicant's Proposal. In addition, any alluvial cover at the highwall crest would be sloped back at a 45 degree angle to prevent slumping and piping.	Same as Applicant's Proposal.	Buttress North Paguate Pit highwall to its crest and slope buttress material 3:1.
South Paguate Pit Highwall				
No Action Proposed	Scale top of highwall to remove loose rock and debris.	Same as Applicant's Proposal. In addition, any alluvial cover at the highwall crest would be sloped back at a 45 degree angle to prevent slumping and piping. The south rim would also be fenced with 6-foot chain link.	Same as Option A.	Pit would be backfilled to its original contour which would eliminate all highwalls.
Waste Dumps				
No Action Proposed	Relocate waste dumps H and J to Jackpile Pit as backfill material. Reduce overall slopes between 2:1 and 3:1. Dumps which have Jackpile Sandstone on their outer surface and any Jackpile Sandstone exposed during reshaping would be covered with 4 feet of non-hazardous overburden and 1 foot of topsoil. Cover dumps that do not contain Jackpile Sandstone on their outer surface with 1 foot of topsoil. Install system of terraces, berms, and rock-lined structures to control erosion. Additional surface treatment is outlined in the vegetation segment of this table. Table 1-2 contains complete description of modifications and treatments proposed for each waste dump. Accompanying cross-sections are shown in Appendix II.	Treatment of waste dumps H and J and Jackpile Sandstone would be same as for Applicant's Proposal. Reduce most dump slopes to 3:1 or less; exceptions are noted in Table 1-2. Install berms on all dump crests to control erosion. Slightly slope all dump tops away from their outer slopes. Contour dumps slopes so their toes are convex to prevent formation of major gullies on slopes. Additional surface treatment is outlined in the vegetation segment of this table. Comparative modifications and treatments are presented in Table 1-2. Accompanying cross-sections are shown in Appendix II.	Same as Option A.	Same as Controlled Use Alternative (Option A).
Protore Stockpiles				
No Action Proposed	Use all protore as backfill material in pit areas. Cover with 4 feet of non-hazardous overburden and 1 foot of topsoil.	Same as Applicant's Proposal.	Use all protore as backfill material. Relocate existing protore stockpiles within confines of pits to lowest pit areas before beginning other backfill operations. Cover with 4 feet of non-hazardous overburden and 1 foot of topsoil.	Same as Applicant's Proposal except that all protore would be positioned above predicted ground water recovery levels. Install a separate fence around the protore stockpile areas.
Site Stability and Drainage				
Stream Stability				
No Action Proposed	Remove all protore and waste material lying within 200 feet of Rio Paguate and Moquino.	Same as Applicant's Proposal. In addition, construct a permanent cement base or a flood-proof bridge on the Rio Moquino immediately above its confluence with Rio Paguate.	Same as Option A.	Same as Controlled Use Alternative (Option A).
Arroyo Headcutting				
No Action Proposed	Armor arroyos south of waste dumps 1, Y and Y2 to inhibit arroyo headcutting. Other headcuts encountered during reclamation will be stabilized by armoring.	Same as Applicant's Proposal. In addition, construct an artificial watershed divide (concrete channel) south of 1, Y and Y2, and armor arroyo north of FD-3.	Same as Option A.	Same as Controlled Use Alternative (Option A).
Blocked Drainages				
No Action Proposed	Remove waste dump J and protore stockpiles 17 BC and 6 N to unblock ephemeral drainage on south side of mine site. Two blocked drainages on north and south sides of Cavilan Mesa would remain blocked. Remainder of mine site, excluding open pits, would drain to Rio Paguate and Moquino.	Same as Applicant's Proposal.	Same as Applicant's Proposal, except pit areas would also drain to Rio Paguate and Moquino.	Same as Applicant's Proposal.

Surface Facilities/StructuresLease No 1 (Jackpile Lease)

No Action Proposed

Remove all facilities including houses, offices, shops, sewage systems, the airstrip, parking areas, and roads (except as noted under "Access Routes" below). Also remove all operational and maintenance equipment, including machinery and tools. Leave power lines and poles passing through Lease No. 1 and serving areas north of lease undisturbed; remove all others. Clear land surface (except pit highwalls and natural outcrops) of radiological material (e.g., Jackpile Sandstone) until gamma readings of twice background or less are achieved. Then grade and seed areas.

Same as Applicant's Proposal. However, the Pueblo of Laguna has requested that certain facilities on Lease No. 1 remain. The Department could approve this request provided the facilities were structurally sound and radiologically safe.

Same as Option A.

Same as Applicant's Proposal except that the Geology building at the employee housing complex, Old Shop and the Open Pit offices would remain. These facilities and associated parking areas would be cleared of radiological material. The Pueblo may elect to modify the request for additional facilities remain on Lease No. 1 upon further evaluation.

Lease No. 4

No Action Proposed

Leave all structures and facilities associated with P-10 Mine and new shop, including all buildings, roads, parking lots, sewage systems, power lines, and poles. Remove all operational and maintenance equipment, including tools, machinery, supplies, and the P-10 conveyor. Clear all permanent structures and land surfaces (except pit highwalls and natural outcrops) of radiological material until gamma readings of twice background or less are achieved. Then grade and seed areas. Remove non-salvageable contaminated buildings and materials to pit for disposal.

Same as Applicant's Proposal.

Same as Applicant's Proposal.

Same as Applicant's Proposal.

Access Routes

No Action Proposed

Clear 4 major roads within mine site of radiological material and leave after reclamation for post-mining use. These access routes include: (1) access road from P-10 and new shop to Highway 279; (2) main road through mine; (3) road that passes between housing area and North Oak Canyon Mesa and then proceeds to P-10; and (4) road to Jackpile Well No. 4. Remove all other roads (except on Lease No. 4). and grade and

Same as Applicant's Proposal.

Same as Applicant's Proposal.

Same as Applicant's Proposal.

Water Wells

No Action Proposed

Leave Jackpile Well No. 4, P-10 Well, Same as Applicant's Proposal. New Shop Well and Old Shop Well, and 3 wells with associated sheltering structures (near housing area). Remove pumps, riser pipe, wiring, and water storage tanks. Also leave wells established for future monitoring purposes. Cap all wells to prevent dust, soil and other contaminants from entering well casing.

No Action Alternative	Applicant's Proposal	Controlled Use Alternative (Option A)	Controlled Use Alternative (Option B)	Laguna Proposal
Rail Spur No Action Proposed	Remove and salvage rail spur from Santa Fe Railroad main line to Jack-pile Mine. Remove underlying ballast material and relocate to one of mine pits. Grade roadbed to conform with local relief and then seed it. Demolish Quirk loading dock and haul it to pit. Clear reclaimed roadbed and loading dock of radiological material (i.e., ore spillage) until gamma readings of twice background or less are achieved.	Same as Applicant's Proposal except the Department could approve the Pueblo's request to leave the rail spur intact. This approval would be contingent upon the rail spur being radiologically safe.	Same as Option A.	Same as Applicant's Proposal except the rail spur would be left intact and cleared of radiological material until gamma readings of twice background or less are achieved.
Drill Holes No Action Proposed	Drill holes would be identified by field investigations and review of existing drilling records. Upon resumption of reclamation activities, upper 5 feet of holes would be plugged with concrete.	Same as Applicant's Proposal; in addition, areas around drill holes will be seeded.	Same as Option A.	Same as Controlled Use Alternative (Option A).
Underground Modifications Ventilation Holes No Action Proposed	Place 10-foot surface plug in each vent hole. Secure plug by either steel pinning or belling out to prevent downward slippage. Contour and seed areas around vent holes.	Backfill vent holes with waste material (Dakota Sandstone and Mancos Shale) to within 10 feet of surface, and place 10-foot cement surface plug. Secure plug by either steel pinning or belling out to prevent downward slippage. Contour and seed areas around vent holes.	Same as Option A.	Same as Controlled Use Alternative (Option A).
Adits and Declines No Action Proposed	Construct cement bulkhead approximately 680 feet below portal of P-10 decline. Backfill decline from bulkhead to ground surface with Dakota Sandstone and Mancos Shale. Place sufficient material over portal to allow for compaction and settling. Shape ground surface above buried portal then top-dress and seed. Bulkhead and backfill Alpine Mine entry. Cover mine entries not previously plugged by backfilling.	Same as Applicant's Proposal.	Same as Applicant's Proposal.	Same as Applicant's Proposal.
Revegetation Methods Top dressing No Action Proposed	Revegetation Methods Top dressing No Action Proposed Following final sloping and grading, top-dress areas to be planted with 1 foot of material composed primarily of Tres Hermanos Sandstone (stockpiled at four locations within mine site). In order to meet top dressing volume requirements, obtain additional material from topsoil borrow area comprising 44 acres. Following topsoil removal, contour disturbed borrow area, then fertilize, seed, and mulch.	Same as Applicant's Proposal.	Same as Applicant's Proposal.	Same as Applicant's Proposal.

Surface Preparation
No Action Proposed

After applying top dressing, fertilize areas to be planted, followed by disking to depth of 8 to 12 inches. Complete surface preparation, where conditions dictate, with compactor roller or sheepfoot roller to create shallow depressions for water collection, water retention, and erosion control.

Same as Applicant's Proposal.

Same as Applicant's Proposal.

Same as Applicant's Proposal.

Seeding and Seed Mixtures
No Action Proposed

In most situations, plant seed mixture with rangeland drill. Broadcast seeding combined with hydromulching may be used on inaccessible sites or if determined to be more feasible than drilling. For both methods, seed mixture would consist mainly of native plant species possessing qualities compatible with post-grazing use and adapted to local environment. Following drill seeding, apply straw mulch at about 2 tons per acre, and crimp into place with a notched disk.

Before seeding operations begin, fence entire mine site to prevent livestock grazing. Seeding methods and mixtures same as for Applicant's Proposal.

Same as Option A.

Same as Controlled Use Alternative (Option A).

Revegetation Success
No Action Proposed

Plant establishment would be considered successful when weighted average for basal cover and production on all revegetated sites equalled or exceeded 70 percent of weighted average for basal cover and production on comparable reference sites on undisturbed lands within lease areas (but no sooner than 3 years following seeding). Prevent livestock grazing until 70 percent comparability values are met. At end of 3-year monitoring period, if unsuccessful trend is shown, retreatment may be necessary to achieve success criteria. Success criteria are discussed under Flora in Chapter 3.

Plant establishment would be considered successful when revegetated sites reach 90 percent of basal cover and production of undisturbed reference areas (but not sooner than 5 years following seeding). Prevent livestock grazing until 90 percent comparability values are met. Retreatment procedures would be same as for Applicant's Proposal.

Same as Option A.

Same as Controlled Use Alternative (Option A) except a minimum of 10 years would be required before determining if the success criteria were met.

MONITORING

Continue Anaconda's present monitoring program

Continue present monitoring program during reclamation period and for minimum of 3 years thereafter. Monitoring activities to be continued would include: meteorologic sampling, air particulate sampling, radon sampling (ambient), radon exhalation sampling, gamma survey, soil and vegetation sampling, water monitoring, and range surveys.

Same as Applicant's Proposal, except monitoring would continue for minimum of 5 years following reclamation. In addition, the monitoring program would be expanded to include ground water recovery levels in the open pits.

Same as Option A.

Same as Controlled Use Alternative (Option A) except monitoring would continue for minimum of 10 years following reclamation.

TABLE 1-1 (Concluded)

No Action Alternative	Applicant's Proposal	Controlled Use Alternative (Option A)	Controlled Use Alternative (Option B)	Laguna Proposal
SECURITY				
Continue Anaconda's present security program to prevent unauthorized access.	Anaconda would continue to have full responsibility for mine access and security during reclamation and monitoring activities. However, security during monitoring phase would require cooperation from Pueblo of Laguna and BIA to prevent livestock grazing on revegetated sites.	Same as Applicant's Proposal.	Same as Applicant's Proposal.	Same as Applicant's Proposal.
COMPLIANCE				
BLM and BIA would continue to ensure compliance with the present monitoring program and security measures.	BLM and BIA would monitor every aspect of reclamation activities to ensure compliance with all reclamation requirements.	Same as Applicant's Proposal	Same as Applicant's Proposal.	Same as Applicant's Proposal.
RECLAMATION COMPLETION				
N/A	Reclamation considered complete with occurrence of the following: 1. When weighted average for basal cover and production on all revegetated sites equalled or exceeded 70 percent of weighted average for basal cover and production on comparable reference sites (but not sooner than 3 years following seeding); or 2. If livestock grazing occurred on any revegetated area before the above weighted average success criteria were met.	Reclamation considered complete when weighted average on revegetated sites equalled or exceeded 90 percent of weighted average on comparable reference sites (but not sooner than 3 years following seeding.)	Same as Option A.	Reclamation considered complete when weighted average on revegetated sites equalled or exceeded 90 percent of weighted average on comparable reference sites (but no sooner than 10 years following seeding).

Dump(a)	Acres	Reclaimed to Date ^{a/}	Dump Composition ^{b/}	Present slope (horizontal:vertical)	Tons	Volume (cubic yards)	Applicant's Proposal ^{d/}	Laguna Proposal ^{e/}
A	23		Outer surface: mainly shales, mixed with some Tres Hermanos Sandstone (THS)	2:1 to 1.4:1			Slope 3:1	Same as Applicant's Proposal
B	71		Outer surface: mainly shales mixed with some THS	1.6:1 to 1.2:1			Slope 3:1	Same as Applicant's Proposal
C	21	X	Topsoil: 24 inches THS mixed with some shales; Under topsoil: THS mixed with shales	2.8:1 to 1.2:1			No change--most of dump slope covered by sloping of Dump FD-2.	Same as Applicant's Proposal, except any slopes not covered by FD-2 would be sloped 3:1.
D	14	X	Topsoil: 24 inches THS mixed with some shales; Under topsoil: THS mixed with shales	1.7:1 to 1.3:1			No change	Slope 3:1
E	12	X	Topsoil: 24 inches THS mixed with some shales; Under topsoil: THS mixed with shales	1.8:1 to 1.3:1			No change	Slope 3:1
F	73	X	Topsoil: 18-24 inches THS mixed with some shales; Under topsoil: mainly shale with some THS and Jackpile Sandstone (JSS)	1.6:1 to 0.8:1			No change	Slope 3:1
FD-1	168		Entire dump: primarily shales with JSS and some THS on west end	1.8:1 to 1.4:1			Dump moved back approx. 200 feet from arroyo. One terrace with 2:1 intermediate slopes; overall slopes from 2.3:1 to 3:1; 5-foot- high erosion-control berm placed between toe of dump and arroyo.	Dump moved back approx. 120 feet from arroyo. Boulder-size talus left at toe of dump to stabi- lize arroyo against headcutting; no terrac- ing; slope 3:1.
FD-2	23		Entire dump: shales and THS	1.7:1 to 1.4:1			Two terraces with 2:1 intermediate slopes; overall slope 2.3:1; top of dump lowered about 50 feet.	Same as Applicant's Proposal due to dump's height and restricted room in surrounding terrain.
FD-3	10		Outer surface: JSS, some shales and THS on slopes	1.5:1 to 1.3:1			Dump moved back about 200 feet from arroyo. One terrace with 2:1 intermediate slopes; overall slopes from 2.3:1 to 3:1; 5-foot- high erosion-control berm placed between toe of dump and arroyo.	Dump moved back about 120 feet from arroyo. Boulder-size talus left at toe of dump to stabi- lize arroyo against headcutting. No terrac- ing; slope 3:1.
G	49	X	Topsoil: 18-24 inches THS mixed with some shales; Under topsoil: shales mixed with JSS exposed on surface prior to covering	5.7:1 to 0.9:1			No change	Slope 3:1
H	7		Outer surface: JSS and some shales	1.7:1 to 1.1:1			Dump removed and back- filled into Jac Pit--underlying reclaimed.	Same as Applicant's

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Dump(s)	Acres	Reclamation to Date	Dump Composition	Present Slope (horizontal:vertical)	Tons	Volume (cubic yards)	Applicant's Proposal	(Options A and B) and Laguna Proposal
I	57	X	Topsoil: 18-24 inches THS; Under topsoil: shales mixed with JSS exposed prior to covering	2:1 to 1.4:1			Approx. 36 acres of slope to be modified by using one terrace with 2:1 intermediate slopes. Overall slope 2.2:1; 21 acres would remain at present configuration of 1.5:1.	Slope east portion 3:1; slope south portion 2.5:1.
J	15	X	Topsoil: 18-24 inches alluvial material taken from floodplain area; Under topsoil: JSS	1.7:1 to 1.2:1			Dump removed and back-filled into Jackpile Pit--underlying area reclaimed.	Same as Applicant's Proposal
K	22	X	Topsoil: 24 inches THS; Under topsoil: mainly THS mixed with shales	2.7:1 to 1.2:1			No change	Slope 3:1
L	40	X	Topsoil: 24 inches THS; Under topsoil: mainly shales mixed with THS	6.2:1 to 2:1			Approx. 18 acres left to reclaim. Slopes now at 1.5:1 would be sloped 3:1.	Same as Applicant's Proposal
N	64		Outer surface: mixed shales and some THS	1.6:1 to 1.1:1			Dump moved back approx. 200 feet from Rio Moquino and sloped 2:1 (no terraces); 5-foot-high erosion-control berm placed between toe of dump and Rio Moquino.	Same as Applicant's Proposal except dump sloped 3:1.
N2			Outer surface: mixed shales and some THS	1.7:1 to 1.5:1			Dump moved back approx. 200 feet from Rio Moquino and sloped 2:1 (no terraces); 5-foot-high erosion-control berm placed between toe of dump and Rio Moquino.	Same as Applicant's Proposal except dump sloped 3:1.
O,P, Pl,P2	35	X	Topsoil: 24 inches THS; Under topsoil: mainly THS with limited amounts of shale	1.6:1 to 1:1			No change	Slope 3:1
Q	52		Outer surface: JSS mixed with some shales	2.3:1 to 1.3:1			Slope 3:1	Same as Applicant's Proposal
R	14		Outer surface: shales mixed with some JSS	4.7:1 to 1.4:1			Slope 3:1	Slope 3:1
S	96	X	Topsoil: 24 inches THS; Under topsoil: THS with some shales	4:1 to 1.2:1			Southern 26 acres seeded and sloped 3:1 and covered with 2 feet of topsoil; 60 acres would remain at present slope configuration of 1.5:1.	Same as Applicant's Proposal except slopes now at 1.5:1 would be resloped 3:1.
South Dump	175		Outer surface: shales and THS on slopes	1.5:1 to 1.2:1			Dump moved back a minimum of 150 feet from arroyo. Overall slopes between 2:1 and 3:1; some areas with one terrace.	Dump moved back a minimum of 150 feet from arroyo and sloped 3:1.

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Dump(s)	Acres	Reclaimed to Date ^{a/}	Dump Composition ^{b/}	Present Slope (horizontal:vertical)	Tons	Volume (cubic yards)	Applicant's Proposal ^{d/}	Laguna Proposal ^{e/}
T	27	X	Topsoil: 18-24 inches TMS; Under topsoil: JSS and some shales exposed prior to covering	1.7:1 to 1.4:1			Approx. 12 acres moved back about 200 feet from Rio Moquino. On 5 acres, slopes between 2:1 and 2.4:1. Some areas with one terrace; 5-foot-high erosion-control berm placed between toe of dump and Rio Moquino; 10 acres would remain at present slope configuration of 1.5:1.	Dump moved back 200 feet from the Rio Moquino and sloped 3:1.
T	5		Outer surface: JSS	1.7:1 to 1.4:1				
U	61		Outer surface: JSS and some shales on slopes	3.7:1 to 1.3:1			Dump moved back approx. 200 feet from Rio Moquino and sloped 2:1. Some parts of dump completely removed; south part with one terrace; 5-foot-high erosion-control berm placed between toe of dump and Rio Moquino.	Same as Applicant's Proposal except dump sloped 3:1.
V	51		Outer surface: JSS, shales, and some TMS on slopes	1.4:1 to 1.3:1			One terrace with 2:1 intermediate slopes; overall slope 2.2:1.	Slope 3:1
W	7		Outer surface: TMS and shales	1.8:1 to 1.4:1			No change due to rock cover on slopes.	Slope 3:1
X	9	X	Topsoil: 18-24 inches TMS; Under topsoil: JSS and some shales	No exterior slopes			No change.	Same as Applicant's Proposal
Y	30		Outer surface: JSS with some shales and TMS	3.2:1 to 0.8:1			One terrace with 2:1 intermediate slopes; overall slope 2.3:1.	Slope 3:1
Y2	15	X	Topsoil: 18-24 inches of TMS on top and none on slopes; Under topsoil: JSS and some shales exposed prior to covering	1.7:1 to 1.4:1			Two terraces with 2:1 intermediate slopes; overall slope 2.4:1.	Slope 2.5:1

Source: Dump composition data from Anaconda Minerals Co., 1982c and 1984a; present slope data from BLM, 1984.

Notes: ^{a/}"Reclaimed to date" does not necessarily mean reclamation is complete. Previously reclaimed dumps proposed for additional treatment are indicated.

^{b/}TMS - Tres Hermanos Sandstone; JSS - Jackpile Sandstone.

^{c/}Volumes are given only for those dumps that may be utilized as backfill material.

^{d/}Applicant's Proposal includes:

- 5-foot-high erosion control berms placed on all dump crests and terraces.
- Dump tops contoured to channel runoff to open-chute rock-lined drainage structures (dumps A, FD-1, FD-2, FD-3, I, M, O, P1, S, South Dump, T, U, V, Y, and Y2).
- Boulder-sized material placed on slopes as necessary to help stabilize them.

^{e/}Controlled Use Alternative and Laguna Proposal includes:

- 5-foot-high erosion control berms placed on all dump crests.
- All dump tops sloped slightly away from their outer slopes.
- No drainage structures.
- All dump slopes contoured so that their toes are convex (to protect slopes from erosion).
- Boulder-sized material placed on slopes as necessary to help stabilize them.

TABLE R-3
FEDERAL RADIATION STANDARDS

Source of Standard	Subject	Standard ^{a/}	
		Item	Dose
Nuclear Regulatory Commission (10 CFR 20.105 and 20.106)	Permissible levels of radiation in unrestricted areas ^{b/}	Annual whole body dose to an individual	0.5 rem (equivalent to 57 microroentgens per hour)
		Radon-222	3 pCi/l (individual) ^{c/} or 1 pCi/l (population)
Environmental Protection Agency (40 CFR 141.15)	Maximum levels for radium-226, radium-228, and gross alpha particle activity in community water systems	Combined radium-226 and radium-228	5 pCi/l
		Gross alpha (including radium-226 but exclud- ing radon and uranium)	15 pCi/l
(40 CFR 192)	Health and environmental pro- tection standards for uranium mill tailings	Radon-222 release from uranium by-product materials	20 pCi/m ² ·s ^{b/}
		Radon-222 concentra- tions at the boundary of a disposal site	0.5 pCi/l
		Radium-226 in land averaged over 100 square meters	5 pCi/g (over the first 15 centimeters of soil below the surface) ^{c/}
			15 pCi/g (averaged over 15-centimeter-thick layers of soil more than 15 centimeters below the surface)
(40 CFR 440.52)	Concentration of pollutants discharged in drainage from uranium mines, either open-pit or underground (<u>in situ</u> leach mines excluded)	Radon daughter and gamma levels inside buildings at abandoned mill sites	.03 WL and 20 uR/h, ^{c/}
		Radium-226 (dissolved)	10 pCi/l (daily maximum) 3 pCi/l (30-day average)
		Radium-226 (total)	30 pCi/l (daily maximum) 10 pCi/l (30-day average)
		Uranium	4 mg/l (daily maximum) ^{c/} 2 mg/l (30-day average)

Notes: ^{a/} Air standards are above background; water standards include background.
^{b/} 10 CFR 40.13 specifically excludes "... unrefined and unprocessed ore..." (i.e., mines and mining).
^{c/} Units of measurement: pCi/l = picocuries per liter; pCi/m²·s = picocuries per square meter per second; pCi/g = picocuries per gram; WL = working level; uR/h = microroentgens per hour; mg/l = milligrams per liter.